IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:		§		
	DEPIERRI, Thomas M.	§	Group Art Unit:	**3652**
		§		
Filed:	**June 26, 2003**	§	Examiner:	**LOWE, Michael S.**
		§		
Serial No.:	**10/609,184**	§	Docket No.:	**7144-1**
		§		
For:	**Bulk Material Loading Device**			

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NEW APPEAL BRIEF (37 C.F.R. §41.37)

This brief is in furtherance of the Notice of Appeal, filed in this case on March 13, 2006, and also in response to the Notice of Non-Compliant Appeal Brief.

Any fees required in connection with this Appeal Brief are paid from the undersigned's deposit account No. 502413 in the name of "Adams and Reese LLP" as a part of the electronic filing of this paper.

I. Real Party In Interest

The real party in interest in this appeal is the applicant, Thomas M. DePierri.

II. Related Appeals and Interferences

NONE.

III. Status of Claims

The total number of claims in the application is 49. The status of all of the claims is as follows:

1. Claims cancelled: 16-23

2. Claims withdrawn: NONE

3. Claims objected to: NONE

4. Claims allowed or confirmed: NONE

5. Claims rejected: 1-15, and 24-49

The claims on appeal are claims 1-15, and 24-49.

IV. Status of Amendments

There have been no amendments to the claims after the second (final) rejection.

V. Summary of Claimed Subject Matter

Generally speaking, independent claims 1, 8, 24, and 37 are each directed to a bulk material loading device, such as would be used to receive and dispense granular materials from a material source into a container for delivery to another location. A common application of such a device is in a plastics plant which manufactures a granular or pelletized form of plastic. The device is placed in mating engagement with an opening in a rail car, and the material is allowed to flow through the device until it comes into contact with a rotating impeller having a plurality of vanes which disperse the material toward the far areas within the container. Thus, the primary objective of the present invention is disperse the material in such a manner as to maximize the "fill efficiency" within the container, rather than allow the material to accumulate in a cone within the container and leave unfilled areas.

Claim 1 is directed to a bulk material loading device 1, comprising an upper casing assembly 2 having inlet means 3 for receiving a bulk material. A motor housing 8 is attached to the upper casing assembly 2, and the motor housing 8 includes a motor 6 having a shaft 7. The motor housing 8 is mounted outside of the inlet means 3. An impeller 10 is attached to the shaft 7 of the motor 6, wherein the impeller 10 is aligned beneath the inlet means 3. The loading device 1 further includes a shutter assembly 5 operatively connected between the motor housing

8 and the upper casing assembly 2, wherein the shutter assembly 5 is movable between a closed position (Figure 2) and an open position (Figure 1). When the shutter assembly 5 is in the open position, the device 1 is permitted to disperse the bulk material. When the shutter assembly 5 is in the closed position, the device 1 is prevented from dispersing the bulk material. The major features of the elements of claim 1 are best shown in Figures 1 and 2, while the shutter assembly 5 is best shown in more detailed views of Figures 6A and 6B. The description of these features generally resides on page 7, lines 17-23, through page 8, lines 1-15, of the specification. A more detailed description of the shutter assembly 5 resides at page 13, lines 9-23, through page 10, lines 1-11 of the specification.

Claim 8 is also directed to a bulk material loading device 1, comprising an upper casing assembly 2 having inlet means 3 for receiving a bulk material. A motor housing 8 is attached to the upper casing assembly 2, and the motor housing 8 includes a motor 6 having a shaft 7. The motor housing 8 is mounted outside of the inlet means 3. An impeller 10 is attached to the shaft 7 of the motor 6, wherein the impeller 10 is aligned beneath the inlet means 3. In this claim, the impeller 10 is further defined as comprising an upper portion 35 and a lower portion 36, wherein the lower portion 35 includes a plurality of vanes 37 adapted to disperse the bulk material, and wherein the upper portion 36 includes a vane-less "guiding" surface 38 formed to direct the bulk material into the plurality of vanes 37. The features of the impeller 10 are best shown in Figures 4A, 5A, and 5B, while the description of these features are found at page 10, lines 22-23, through page 11, lines 1-5 of the specification. Further detail on the specific design of the vanes 37 and the guiding surface 38 are also found at page 11, lines 5-22, through page 13, lines 1-8 of the specification.

Claim 24 is directed to a bulk material loading device 1, comprising an upper casing assembly 2 having inlet means 3 for receiving a bulk material. A motor housing 8 is attached to the upper casing assembly 2, and the motor housing 8 includes a motor 6 having a shaft 7. The motor housing 8 is mounted outside of the inlet means 3. An impeller 10 is attached to the shaft 7 of the motor 6, wherein the impeller 10 is aligned beneath the inlet means 3. This claim further requires a level sensing means 13 operatively positioned below the impeller 10 for sensing an accumulation of bulk material in a container when the bulk material in the container is at a predetermined height above an "operative level" of the level sensing means 13. The level sensing means 13 is best shown in Figures 4A and 4B, while the description of those features resides at page 8, lines 16-23, through, page 10, lines 1-8 of the specification.

Claim 37 is directed to a non-motorized bulk material loading device, comprising an upper casing assembly 2 having inlet means 3 for receiving a bulk material, and a material guide 62 positioned below the inlet means 3, wherein the material guide 62 includes a surface, such as a circular cone, capable of deflecting the bulk material. Similar to claim 24, this claim also includes a level sensing means 13 operatively positioned below the material guide 62 for sensing an accumulation of bulk material in a container when the bulk material in the container is at a predetermined height above an "operative level" of the level sensing means 13. The level sensing means 13 is described in the specification as set forth above with respect to claim 24, while the overall device of claim 37 is described at page 15, lines 5-15, and is best depicted in Figure 9.

VI. Grounds of Rejection to be Reviewed on Appeal

Claim 24 stands rejected under 35 U.S.C. §102(b) as being anticipated by DCL (RPT24 Rotary Product Trimmer RPT-10001).

Claims 8, 10, 26, 33, 35, 37, 38, and 40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DCL in view of Berquist (US 5,393,189).

Claims 1-5, 9, 11-13, 25, and 28-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215).

Claims 6, 7, 14, 15, 31, and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215), and further in view of Gentilcore (US 5,052,451).

Claim 27 stands rejected under 35 U.S.C. §103(a) as being unpatentable over DCL in view of Felix (US 3,469,718).

Claims 34, 36, 39, and 41 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DCL in view of Cherek (US 5,748,562).

Claims 42-47 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215) as applied to claim 1, and further in view of Felix (US 3,469,718).

Claims 48 and 49 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215), Felix (US 3,469,718), and further in view of Gentilcore (US 5,052,451).

VII. Arguments

A. Rejection of Claim 24 based on 35 U.S.C. §102(b) as being anticipated by DCL (RPT24 Rotary Product Trimmer RPT-10001).

Claims 24 has been rejected under §102(b) as being anticipated by DCL. However, claim 24 is both novel and nonobvious in comparison to the DCL reference. Specifically, this claim requires that the level sensing means sense the level of material "when said bulk material in said

container is at a predetermined height *above an operative level* of said level sensing means." As shown in Figures 4A and 4B, and as explained in the specification at page 9, lines 22-24, through page 10, lines 1-8, the level probe 50 is protected within a well 51, and material can only contact the level probe 50 when it spills through an inlet port 52 *above* the operative level of the probe 50. Thus, the present invention stops when the material level is actually *above or higher than the probe* 50. This design is in sharp contrast to the DCL reference, because the level probe on that device is completely exposed (See Section B-B, adjacent to impeller). Therefore, in the DCL reference, the device stops when the material is at *the level of the probe*. For the above reasons, claim 24 is both novel and nonobvious in comparison to the DCL reference.

B. Rejection of Claims 8, 10, 26, 33, 35, 37, 38, and 40 based on 35 U.S.C. §103(a) as being unpatentable over DCL in view of Berquist (US 5,393,189).

Claim 8 includes an upper portion (35) of the impeller (10) having a "vane-less" feature formed to direct bulk material to the vanes (37) of the lower portion (36). This is an important distinction from the cited DCL reference, because the pellets of the bulk materials are caused to change direction upon contacting the guiding surface (38). This explanation is provided extensively in the specification at page 10, lines 22-23, through page 11, lines 1-7, and is best illustrated at Figures 4A, 5A, and 5B. Further explanation of the two-fold importance of the vane-less guiding surface (38) is provided at page 12, lines 1-17. First, the power requirement to achieve a desired trajectory and discharge velocity is *reduced*, because a horizontal velocity component has been imparted by virtue of the reaction between the guiding surface (38) and the material. Second, the vane-less guiding surface (38) allows use of vanes (37) that are shaped to minimize collisions between particles that have been impacted by an impeller vane (37) and particles that have yet to be impacted, while also maintaining a reasonably small range of

tangential velocities of the impeller vane (37) within the expected impact region. Consequently, claim 8 is both novel and nonobvious in comparison to the DCL reference.

In contrast with claim 8, the cited DCL reference includes an impeller which has vanes extending across almost the entire height of the inverted cone base, and which also protrude *substantially past* the inverted cone. Thus, material falling from the DCL device is *immediately* contacted by the impeller vanes. The disadvantages to the DCL design are that: (a) more power is required from the motor, and (b) deflection angles of the material are substantially less than ideal. The end result is that the DCL device is incapable of throwing material to the farthest extents of a container, and it cannot achieve the fill efficiencies of the present invention.

Berquist (US Patent No. 5,393,189) is a spreader used above a storage bin and includes an impeller having a plurality of vanes. However, the Berquist reference is an entirely separate and independent device, and it is not shown in connection with any other components described and claimed. In fact, Berquist is not even a motor-driven device at all, and it operates solely by the falling material impacting its vanes. In summary, it is not a loading device, such as that claimed in claim 8, but rather a reactive spreader that is installed permanently within a storage bin. As such, the Berquist patent is not analogous to the DCL reference, and those references are not properly combinable. Even if Berquist were combinable with the DCL reference, it is apparent that Berquist does not teach an "impeller in rotational communication with said shaft of said motor" as required in claim 8. Thus, the cited combination fails to establish a prima facie case for obvious against claim 8, and claim 8 should be allowable. Claim 10 adds the further limitation of a level sensing means below the impeller to detect an accumulation of bulk material, so claim should likewise be allowable over the cited prior art.

With respect to claims 26, 33, 35, 37, 38, and 40, the same arguments apply with respect to Berquist, i.e. that Berquist is not properly combinable with the DCL reference. Therefore, those claims should be allowable over the cited combination.

C. Rejection of Claims 1-5, 9, 11-13, 25, and 28-30 based on 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215).

With respect to claim 1, the combination of DCL in view of Krambrock is not sufficient to support a prima facie rejection based on obviousness. The only function in common between DCL and Krambrock are that they dispense material; otherwise they are completely different from one another. DCL is an impeller-driven device which disperses material that comes in to contact with its impeller. The impeller is driven by a motor located below the level that material is dispersed. In contrast, Krambrock is not an impeller-driven device, but rather simply permits material to fall through its outlet opening (12). A cable and pulley system (17, 18) is used to raise and lower a "deflection body" (14) which opens or closes the opening (12). Krambrock lacks a "shutter assembly operatively connected between said motor housing and said upper casing assembly," because Krambrock has no motor.

It is also impossible and nonsensical to modify DCL by Krambrock. For example, if DCL were modified by the disclosure of Krambrock, then such an attempt would essentially impose a flow control at the impeller level of DCL where *none is required*, because flow control in DCL is handled at a location far above the device. Most importantly, there is no apparent way to implement the central cable and pulley system of Krambrock through the impeller and motor of DCL, unless one were to completely redesign one or both devices, i.e. undue experimentation. Even then, it is not clear at all how such a system could be designed (or why such a design would

even be desired). Consequently, the proposed combination of DCL and Krambrock does not disclose or suggest the invention as claimed in claim 1.

Claims 2-5 are dependent from claim 1 and include limitations further distinguishing the invention from the cited combination. Therefore, claims 2-5 are also nonobvious in comparison to the combination of DCL in view of Krambrock, irrespective of the other bases upon which those claims have been rejected elsewhere in the final Office Action. Based on the inability of Krambrock to be used in modifying the DCL reference, as explained above, a prima facie case for obviousness cannot be supported, and the remaining rejected claims based on this cited combination, namely claims 9, 11-13, 25, and 28-30, should also be allowable.

D. Rejection of Claims 6, 7, 14, 15, 31, and 32 based on 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215), and further in view of Gentilcore (US 5,052,451).

For the reasons expressed above with respect to the inability to combine Krambrock with the DCL reference, the addition of Gentilcore to that combination does not advance the basis for the rejections. Therefore, claims 6, 7, 14, 15, 31, and 32 should also be allowable.

E. Rejection of Claim 27 based on 35 U.S.C. §103(a) as being unpatentable over DCL in view of Felix (US 3,469,718).

Claim 27 is allowable over the cited combination, because the parent claim, claim 24, is allowable over the DCL reference, as explained above in Section VII.A. of this appeal brief. In short, the Felix reference cannot disclose or teach what the DCL reference lacks.

F. Rejection of Claims 34, 36, 39, and 41 based on 35 U.S.C. §103(a) as being unpatentable over DCL in view of Cherek (US 5,748,562).

Claims 34 and 36 are allowable over the cited combination, because the independent parent claim, claim 24, is allowable over the DCL reference, as explained above in Section VII.A. of this appeal brief. In short, the Cherek reference cannot disclose or teach what the DCL reference lacks. With respect to claims 36 and 41, Cherek does not disclose or teach a set screw at all, but rather shows a screw 8 which simply threads into the probe, i.e. it does not function as a "set screw."

G. Rejection of Claims 42-47 based on 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215) as applied to claim 1, and further in view of Felix (US 3,469,718).

Claims 42-47 are ultimately dependent from independent parent claim 1. As stated above in Section VII.C. of this appeal brief, the underlying cited combination of DCL and Krambrock does not support a prima facie case for obviousness against claim 1. Therefore, the further citation of Felix adds nothing to the combination, particularly since claims 42-47 only add further limitations to claim 1. Hence, claims 42-47 should also be allowable.

H. Rejection of Claims 48 and 49 based on 35 U.S.C. §103(a) as being unpatentable over DCL in view of Krambrock (US 5,660,215), Felix (US 3,469,718), and further in view of Gentilcore (US 5,052,451).

Claims 48 and 49 are ultimately dependent from independent parent claim 1. As stated above in Sections VII.C. and VII.G. of this appeal brief, the underlying cited combination of DCL and Krambrock does not support a prima facie case for obviousness against claim 1. Therefore, the further citation of Felix and Gentilcore add nothing to the combination, particularly since claims 48 and 49 only add further limitations to claim 1. Hence, claims 48 and 49 should also be allowable.

VIII. Appendix of Claims

The text of the claims involved in the appeal are:

1. A bulk material loading device, comprising:

(a) an upper casing assembly having inlet means for receiving a bulk material;

(b) a motor having a shaft and a motor housing, wherein said motor housing is mounted to said upper casing assembly outside of said inlet means;

(c) an impeller in rotational communication with said shaft of said motor, wherein said impeller is aligned beneath said inlet means; and

(d) a shutter assembly operatively connected between said motor housing and said upper casing assembly, wherein said shutter assembly is movable between a closed position preventing said device from dispersing said bulk material and an open position permitting said device to disperse said bulk material.

2. The device of claim 1, further comprising level sensing means operatively positioned below said impeller for sensing an accumulation of said bulk material.

3. The device of claim 1, wherein said shutter assembly comprises:

(a) a cylindrical shutter having an upper rim and a lower rim; and

(b) a shutter flange extending radially from said shutter.

4. The device of claim 1, wherein said motor housing includes a shutter contact surface formed to contact said shutter assembly in a closed position and retain residual bulk material inside said device.

5. The device of claim 1, wherein said upper casing assembly further comprises lifting means operatively in contact with said shutter assembly for at least partially opening said shutter assembly to permit the release of residual bulk material from said device.

6. The device of claim 5, wherein said shutter assembly further comprises a plurality of lifting flanges, and wherein said lifting means comprises a plurality of lifting actuators operatively in contact with said lifting flanges.

7. The device of claim 6, wherein said lifting actuators are pneumatic.

8. A bulk material loading device, comprising:

(a) an upper casing assembly having inlet means for receiving a bulk material;

(b) a motor having a shaft and a motor housing, wherein said motor housing is mounted to said upper casing assembly outside of said inlet means; and

(c) an impeller in rotational communication with said shaft of said motor, wherein said impeller is aligned beneath said inlet means, wherein said impeller comprises an upper portion and a lower portion, wherein said lower portion includes a plurality of vanes adapted to disperse said bulk material, and wherein said upper portion includes a vane-less surface formed to direct said bulk material into said plurality of vanes.

9. The device of claim 8, further comprising a shutter assembly operatively connected between said motor housing and said upper casing assembly, wherein said shutter

assembly is movable between a closed position preventing said device from dispersing said bulk material and an open position permitting said device to disperse said bulk material.

10. The device of claim 8, further comprising level sensing means operatively positioned below said impeller for sensing an accumulation of said bulk material.

11. The device of claim 9, wherein said shutter assembly comprises:

(a) a cylindrical shutter having an upper rim and a lower rim; and

(b) a shutter flange extending radially from said shutter.

12. The device of claim 9, wherein said motor housing includes a shutter contact surface formed to contact said shutter assembly in a closed position and retain residual bulk material inside said device.

13. The device of claim 9, wherein said upper casing assembly further comprises lifting means operatively in contact with said shutter assembly for at least partially opening said shutter assembly to permit the release of residual bulk material from said device.

14. The device of claim 13, wherein said shutter assembly further comprises a plurality of lifting flanges, and wherein said lifting means comprises a plurality of lifting actuators operatively in contact with said lifting flanges.

15. The device of claim 14, wherein said lifting actuators are pneumatic.

24. A bulk material loading device, comprising:

(a) an upper casing assembly having inlet means for receiving a bulk material;

(b) a motor having a shaft and a motor housing, wherein said motor housing is mounted to said upper casing assembly outside of said inlet means;

(c) an impeller in rotational communication with said shaft of said motor, wherein said impeller is aligned beneath said inlet means; and

(d) level sensing means operatively positioned below said impeller for sensing an accumulation of said bulk material in a container when said bulk material in said container is at a predetermined height above an operative level of said level sensing means.

25. The device of claim 24, further comprising a shutter assembly operatively connected between said motor housing and said upper casing assembly, wherein said shutter assembly is movable between a closed position preventing said device from dispersing said bulk material and an open position permitting said device to disperse said bulk material.

26. The device of claim 24, wherein said impeller comprises an upper portion and a lower portion, wherein said lower portion includes a plurality of vanes adapted to disperse said bulk material, and wherein said upper portion includes a vane-less surface formed to direct said bulk material into said plurality of vanes.

27. The device of claim 24, wherein said impeller includes a plurality of vanes, and wherein said vanes are oriented at a predetermined non-zero angle with respect to vertical.

28. The device of claim 25, wherein said shutter assembly comprises:

(a) a cylindrical shutter having an upper rim and a lower rim; and

(b) a shutter flange extending radially from said shutter.

29. The device of claim 25, wherein said motor housing includes a shutter contact surface formed to contact said shutter assembly in a closed position and retain residual bulk material inside said device.

30. The device of claim 25, wherein said upper casing assembly further comprises lifting means operatively in contact with said shutter assembly for at least partially opening said shutter assembly to permit the release of residual bulk material from said device.

31. The device of claim 30, wherein said shutter assembly further comprises a plurality of lifting flanges, and wherein said lifting means comprises a plurality of lifting actuators operatively in contact with said lifting flanges.

32. The device of claim 31, wherein said lifting actuators are pneumatic.

33. The device of claim 24, wherein said level sensing means comprises a level probe attached adjacent to said motor housing, said level probe being responsive to contact with said bulk material.

34. The device of claim 33, wherein said level probe is a piezoelectric-based vibratory probe.

35. The device of claim 33, wherein said level probe is protected within a well having an inlet port and a bottom opening.

36. The device of claim 33, wherein said level probe is detachably mounted by a set screw.

37. A bulk material loading device, comprising:

(a) an upper casing assembly having inlet means for receiving a bulk material;

(b) a material guide, positioned below said inlet means, having a surface capable of deflecting said bulk material; and

(c) level sensing means operatively positioned below said material guide for sensing an accumulation of said bulk material in a container when said bulk material in said container is at a predetermined height above an operative level of said level sensing means.

38. The device of claim 37, wherein said level sensing means comprises a level probe attached below said material guide, said level probe being responsive to contact with said bulk material.

39. The device of claim 38, wherein said level probe is a piezoelectric-based vibratory probe.

40. The device of claim 38, wherein said level probe is protected within a well having an inlet port and a bottom opening.

41. The device of claim 38, wherein said level probe is detachably mounted by a set screw.

42. The device of claim 1, wherein said impeller includes a plurality of vanes, and wherein said vanes are oriented at a predetermined non-zero angle with respect to vertical.

43. The device of claim 42, further comprising a shutter assembly operatively connected between said motor housing and said upper casing assembly, wherein said shutter assembly is movable between a closed position preventing said device from dispersing said bulk material and an open position permitting said device to disperse said bulk material.

44. The device of claim 42, further comprising level sensing means operatively positioned below said impeller for sensing an accumulation of said bulk material.

45. The device of claim 43, wherein said shutter assembly comprises:

(a) a cylindrical shutter having an upper rim and a lower rim; and

(b) a shutter flange extending radially from said shutter.

46. The device of claim 43, wherein said motor housing includes a shutter contact surface formed to contact said shutter assembly in a closed position and retain residual bulk material inside said device.

47. The device of claim 43, wherein said upper casing assembly further comprises lifting means operatively in contact with said shutter assembly for at least partially opening said shutter assembly to permit the release of residual bulk material from said device.

48. The device of claim 47, wherein said shutter assembly further comprises a plurality of lifting flanges, and wherein said lifting means comprises a plurality of lifting actuators operatively in contact with said lifting flanges.

49. The device of claim 48, wherein said lifting actuators are pneumatic.

IX. Appendix of Evidence

NONE.

X. Appendix of Related Proceedings

NONE.

Respectfully submitted:

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